Pediatric Rheumatology

Poster presentation

The role of synovial fluid cytokines IL-6, IL-23 and IL-17 in the pathogenesis and persistence of synovial inflammation in JIA patients

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Objective

Recent data in adult Rheumatoid Arthritis support that the Th17 cell-derived cytokine interleukin 17 (IL-17) in the presence of IL-6 and IL-23 plays a critical role in the pathogenesis of chronic destructive arthritis. Data on synovial fluid (SF) concentrations of IL-17 in JIA pts are sparse. We measured concentrations of the above 3 cytokines and assessed the CD4+CD25^{high}FoxP3+ (Treg) and CD4+CD25^{low}FoxP3- T cell subpopulations in the SF of children with JIA. Findings were correlated with SF sRANKL which expresses the osteoclastic activity in active disease.

Materials and methods

80 samples of SF obtained from 69 children (4–16 yrs) with JIA (oligo-persistent 35, oligo-extended 15, and poly-19) were studied. All samples derived from knees with active arthritis and hydrarthros. Fifteen more SF samples from children with recent traumatic arthritis were used as controls. ELISA and Flow cytometry were used for assessments.

Results

Synovial fluid concentrations of IL-6, IL-23, IL-17 and sRANKL were found significantly elevated in patients compared with those of controls. Numbers of Treg cells were significantly lower while numbers of CD4+CD25^{low}FoxP3- T cells were significantly higher in JIA patients than in controls. There was a positive correlation between SF IL-17 and sRANKL concentrations in JIA patients.

Conclusion

Our findings suggest that IL-17 is significantly elevated in the SF of JIA patients and is associated with osteoclastic activity. The clinical significance of these findings is that they may contribute in defining new therapeutic targets to prevent destructive arthritis.